

REMARKS/ARGUMENTS

Claim 1 was rejected under 35 U.S.C. §112, second paragraph. Reconsideration of the rejection is respectfully requested.

Claim 1 has been amended to overcome the rejection.

Claims 1, 7, and 16 were objected to because of certain informalities. Reconsideration of the objections is respectfully requested.

Claims 1, 7, and 16 have been amended to overcome the objections.

Claims 1-10 and 15-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Harris et al., U.S. Patent No. 3,806,252 in view of Lauer, U.S. Patent No. 6,525,875. Reconsideration of the rejection is respectfully requested.

Claims 11-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Harris et al. in view of Lauer and further in view of Krause, U.S. Patent No. 5,587,832. Reconsideration of the rejection is respectfully requested.

With regard to independent claim 1, the Examiner contends that the feature of modifying the focus plane of the inner part of the orifice of the object by changing it to another focus plane is found in column 9, lines 55-58, and Fig. 2 of Harris et al., (Office Action, page 3, lines 10-12). The Examiner further contends that the feature of independent claim 1 of measuring the contour of the orifice in the focus plane in order to determine the inner topography of the orifice by projecting a sequence of patterns and measuring the position of the points of the contour of the orifice when the images of the projected pattern and their reflection on the inner walls of the orifice are superimposed on the plane of the camera 613 is disclosed in column 12, lines 3-9, and Fig. 7 of Harris et al., (Office Action, page 3, lines 12-16).

Applicants respectfully disagree. In particular, column 9, lines 55-58, of Harris et al. appears to teach light beams being positioned so that the edge of the beams falls across the hole and does not appear to teach anything about changing the focus plane of an inner part of an orifice of an object to another focus plane.

With regard to column 12, lines 3-9, of Harris et al., that portion of Harris et al. appears to discuss the processing of a laser beam 702 by plate 703, allowing a large percentage of the beam 702 to pass through the plate and reflecting a reference beam 704, which is a small

percentage of beam 702, onto diffuser 705 and into fiber optics tube 706, which communicates the light from reference beam 704 into photomultiplier 707, which generates a reference beam signal I_R . This portion of Harris et al., thus, does not appear to teach, disclose, or suggest measuring the contour of an orifice in the focus plane in order to determine the inner topography of the orifice by projecting a sequence of patterns and measuring the position of the points of the contour of the orifice when the images of the projected pattern and their reflection on the inner walls of the orifice are superimposed on the plane of the camera 613, as contended by the Examiner.

Furthermore, the Examiner contends that Lauer teaches repeating the above process, specified by the Examiner on page 3, lines 3-16 of the Office Action, for a number of planes inside the orifice, citing column 64, lines 50-54 of Lauer, and processing the data for the contours measured in the different planes to obtain a three-dimensional geometrical representation of the inner topography of the orifice, as well as its characteristic parameters (maximum and minimum diameters of the orifice, slope of the wall of the orifice, deviations from nominal figure, position of the axis of the orifice, etc.), not citing a column or lines of Lauer, (Office Action, page 4, lines 1-7).

With regard to column 64, lines 50-54, of Lauer, that portion of Lauer only appears to speak about obtaining a value taken for a corresponding element of a three-dimensional frequency representation as being of the average of values for which indices (i,j,k) are obtained, and does not appear to teach anything about the process specified in claim 1, which was referred to by the Examiner, on page 3, lines 3-16, of the Office Action. With regard to processing the data for the contours measured in the different planes to obtain a three-dimensional geometrical representation of the inner topography of the orifice, as well as its characteristic parameters (maximum and minimum diameters of the orifice, slope of the wall of the orifice, deviations from nominal figure, position of the axis of the orifice, etc.), the Examiner has not even cited a particular portion of Lauer as teaching this element of claim 1.

With regard to dependent claim 7, it has been amended to specify that the "at least one camera [is] adapted to acquire a series of images, one image of the series of images for each of

the sequence of patterns projected.” Antecedent basis for the amendment to dependent claim 7 is found, for example, in the specification, on page 5, lines 3-6.

With regard to claim 7, the Examiner contends that the at least one camera of claim 7 is element 613, citing Figs. 6 and 7 in Harris et al., (Office Action, page 6, line 18).

However, alleged camera 613 appears to be a photomultiplier sensing a quantity of energy of the beam 611 and generating an electrical signal having a voltage reflective of the magnitude of the sensed quantity of energy, (column 7, lines 30-33). In contrast, claim 7 has been amended to require that the at least one camera is adapted to acquire a series of images, one image of the series of images for each of the sequence of patterns projected, in contrast to the photomultiplier 613 disclosed in Harris et al.

Since each of claims 2-18 is directly or indirectly dependent upon independent claim 1, each of claims 2-18 is allowable for at least the same reasons recited above with respect to the allowability of independent claim 1.

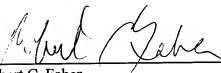
Since each of claims 8-18 is directly or indirectly dependent upon claim 7, each of claims 8-18 is allowable for at least the same reasons recited above with respect to the allowability of claim 7.

In view of the foregoing amendments and remarks, allowance of claims 1-18 is respectfully requested.

Respectfully submitted,

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